

## CLAIMS

### WHAT IS CLAIMED:

1. A method, comprising:

determining a precision metric associated with each of a plurality of metrology tools;

5 generating a metrology request including context information;

identifying a precision requirement for the metrology request based on the context  
information; and

identifying a set of the metrology tools capable of satisfying the metrology request  
based on the precision requirement and the precision metrics.

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2. The method of claim 1, further comprising selecting one of the metrology  
tools from the set.

3. The method of claim 2, wherein selecting the one of the metrology tools  
15 further comprises selecting the one of the metrology tools having an associated precision  
metric closest to the precision requirement.

4. The method of claim 3, further comprising:

identifying a bottleneck condition associated with the selected one of the metrology  
20 tools; and

selecting a different one of the metrology tools in the set responsive to identifying the  
bottleneck condition.

5. The method of claim 4, wherein selecting the different one of the metrology  
25 tools further comprises:

removing the selected metrology tool from the set; and  
selecting one of the metrology tools remaining in the set having an associated  
precision metric closest to the precision metric.

5           6.     The method of claim 3, further comprising:  
identifying a bottleneck condition associated with the selected metrology tool; and  
selecting a different one of the metrology tools not in the set responsive to identifying  
the bottleneck condition.

10           7.     The method of claim 1, wherein identifying the precision requirement further  
comprises extracting the precision requirement from the context information.

8.     The method of claim 1, wherein identifying the precision requirement further  
comprises:

15           extracting a metrology event type from the context information; and  
associating the metrology event type with the precision requirement.

9.     The method of claim 1, wherein generating the metrology request further  
comprising generating the metrology request for at least one of a control action event, a  
20 control model update event, a fault detection event, and a fault detection model update event.

10.    A manufacturing system, comprising:  
a manufacturing execution system server configured to generate a metrology request  
including context information; and

a metrology monitor configured to determine a precision metric associated with each  
of a plurality of metrology tools, identify a precision requirement for the  
metrology request based on the context information, and identify a set of the  
metrology tools capable of satisfying the metrology request based on the  
precision requirement and the precision metrics.

11. The system of claim 10, wherein the manufacturing execution system server is  
configured to select one of the metrology tools from the set.

12. The system of claim 11, wherein the manufacturing execution system server is  
configured to select the one of the metrology tools having an associated precision metric  
closest to the precision requirement.

13. The system of claim 12, wherein the manufacturing execution system server is  
configured to identify a bottleneck condition associated with the selected metrology tool and  
select a different one of the metrology tools in the set responsive to identifying the bottleneck  
condition.

14. The system of claim 13, wherein the manufacturing execution system server is  
configured to discarding the selected metrology from the set and select one of the metrology  
tools remaining in the set having an associated precision metric closest to the precision  
metric.

15. The system of claim 12, wherein the manufacturing execution system server is  
configured to identify a bottleneck condition associated with the selected metrology tool and

select a different one of the metrology tools not in the set responsive to identifying the bottleneck condition.

16. The system of claim 10, wherein the metrology monitor is further configured  
5 to extract the precision requirement from the context information.

17. The system of claim 10, wherein the metrology monitor is further configured  
to extracting a metrology event type from the context information and associate the  
metrology event type with the precision requirement.

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18. The system of claim 10, wherein the manufacturing execution system server is  
configured to generate the metrology request for at least one of a control action event, a  
control model update event, a fault detection event, and a fault detection model update event.

15 19. A system, comprising:  
means for determining a precision metric associated with each of a plurality of  
metrology tools;  
means for generating a metrology request including context information;  
means for identifying a precision requirement for the metrology request based on the  
20 context information; and  
means for identifying a set of the metrology tools capable of satisfying the metrology  
request based on the precision requirement and the precision metrics.